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Loewia erecta n. sp. (Diptera: Tachinidae) – a new parasitic fly from Fennoscandia and Poland

Christer Bergström

Abstract

Loewia erecta **n. sp.** from Sweden, Finland, Norway and Poland is described. The new species is similar to *L. phaeoptera* (Meigen). A modified key in addition to the key for *Loewia* of Tschorsnig & Herting (1994) is given. Information on the holotype of *L. phaeoptera* is provided.
Keywords: Tachinidae, *Loewia*, new species, key, Fennoscandia.

Zusammenfassung

Loewia erecta **n. sp.** aus Schweden, Finnland, Norwegen und Polen wird beschrieben. Die neue Art ist *L. phaeoptera* (Meigen) ähnlich. Es wird ein modifizierter Bestimmungsschlüssel als Ergänzung zum *Loewia*-Schlüssel von Tschorsnig & Herting (1994) gegeben. Zum Holotypus von *L. phaeoptera* werden Angaben gemacht.

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1 Introduction

The genus *Loewia* Egger, 1856 belongs to the subfamily Tachininae and is usually placed in the large and multiform tribe Ernestiini (Herting & Dely-Draskovits 1993). O'Hara & Wood (2004) present a different tribal classification for the Tachininae and include *Loewia* in the tribe Loewiini, together with *Eloceria* Robineau-Desvoidy, *Hyalurgus* Brauer & Bergenstamm, *Triarthria* Stephens and some other genera.

Species of *Loewia* are small to medium-sized (body length about 3–10 mm). These dark flies can be recognized using the following features: Head: Male frons nar-

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row, female frons wide; height of face shorter than length of frons; frontal setae descending at most to a position level with the lower margin of pedicel; facial ridge with a few hairs immediately above vibrissa; antenna inserted at about the level of the middle of the eye; first flagellomere short, in most species 1–1.5 times (in *Loewia cretica* up to 2 times) as long as pedicel; occiput covered with small black setulae, but with at least a few pale hairs present at the posterior mouth edge (postgena). Thorax: Prosternum bare; scutum with 3 postsutural intra-alar setae; anepimeral seta at least 1.5 times as long as the surrounding hairs; apical scutellar setae horizontal, crossed. Wing cell r_{4+5} usually petiolate (without petiole in *L. alpestris*). Fore tibia with the anterodorsal preapical seta at least as long as the dorsal preapical seta. Abdomen entirely black or with a light pruinescence that reaches the posterior margin of the tergites.

Loewia is mainly represented in the Palaearctic region. A single species, *Loewia foeda*, is also recorded from the Nearctic (Wood & Wheeler 1972). Up to the present, a total of 14 species of *Loewia* are recorded worldwide, including the newly described species *Loewia cretica* (Ziegler 1996). Three of the 11 European species are currently known from the Nordic countries. Two of them, *L. foeda* (Meigen) and *L. submetallica* (Macquart), can usually easily be recognized using the keys of Tschorsnig & Herting (1994) or Ziegler (1996). The third one, *L. erecta* n. sp., is very similar to *L. phaeoptera* (Meigen) and was hitherto confused with this species in Fennoscandia.

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2 Materials and Methods

This study was based on the examination of the following material representing nine European species of *Loewia*:

L. erecta n. sp. (see description),
L. foeda (Meigen, 1824) (78 specimens from Sweden [CB, NHRS] and Finland [MZH]),
L. submetallica (Macquart, 1855) (4 specimens from Sweden [CB, NHRS] and Denmark [NHM]),
L. adjuncta Herting, 1971 (2 specimens from Switzerland [SMNS] and Italy [SMNS]),
L. nudigena Mesnil, 1973 (2 specimens from Switzerland [SMNS]),
L. phaeoptera (Meigen, 1824) (12 specimens from Germany [SMNS]),
L. piligena Mesnil, 1973 (2 specimens from Austria [SMNS]),
L. rondanii (Villeneuve, 1919) (2 specimens from Italy [CB]),
L. brevifrons (Rondani, 1856) (4 specimens from Italy [MZH]).

Digital images of the holotype of *Tachina phaeoptera* [MNHN] have been examined.

The dissection of the male genitalia was performed following the method described by ANDERSEN (1996) and in detail by O'HARA (2002). Dissected male and female genitalia are preserved in glycerine in a small plastic tube pinned together with the specimen. For the preparation of the images genital parts and a wing were mounted on microscopic slides in polyvinyllactophenol, sometimes with an admixture of chlorazol black E.

External morphological images (Figs. 1–5, 7–9) were taken with a Nikon D2X digital camera mounted on a bellows and a macro-optical tube. Images of wing and terminalia (Figs. 6, 10–19) were taken with a digital camera mounted on a stereoscopic microscope. To create a completely focused image, a series of images of each object were taken at different focal planes. Using HeliconFocus, a program that combines the focused areas from the several partially focused images, one completely focused image was created.

Data on the labels of type material are listed using the following symbols: / = end of a line; // = end of a label (from top to bottom on the same pin).

Terminology of external morphology and terminalia as well as measurements and ratios of head follow HERTING (1957), TSCHORSNIG (1985) and TSCHORSNIG & RICHTER (1998).

Acronyms of depositories

BYS	Private collection of C. BYSTROWSKI, Warsaw, Poland
CB	Private collection of C. BERGSTRÖM, Uppsala, Sweden
CNC	Canadian National Collection, Biosystematics Research Centre, Ottawa, Canada (J. E. O'HARA)
KR	Private collection of K. ROGNES, Madla, Norway
MNHN	Museum Nationale d'Histoire Naturelle, Laboratoire d'Entomologie, Paris, France (E. DELFOSSE)
MZH	Zoological Museum, Helsinki, Finland (J. LAIHO)
MZLU	Museum of Zoology, Lund University, Sweden (R. DANIELSSON)]
NHRS	Swedish Museum of Natural History (= Naturhistoriska Riksmuseet), Department of Entomology, Stockholm, Sweden (B. VIKLUND)
RE	Private collection of R. ENGELMARK, Umeå, Sweden
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany (H.-P. TSCHORSNIG)
ZIUU	Zoological Institute, University of Uppsala, Sweden (L. HEDSTRÖM)
ZMUN	Natural History Museum, Department of Collection and Research Services, University of Oslo, Norway (Ø. GAMMELMO)
ZMUC	Zoological Museum, University of Copenhagen, Denmark (T. PAPE)

3 Description of *Loewia erecta* n. sp.

Material

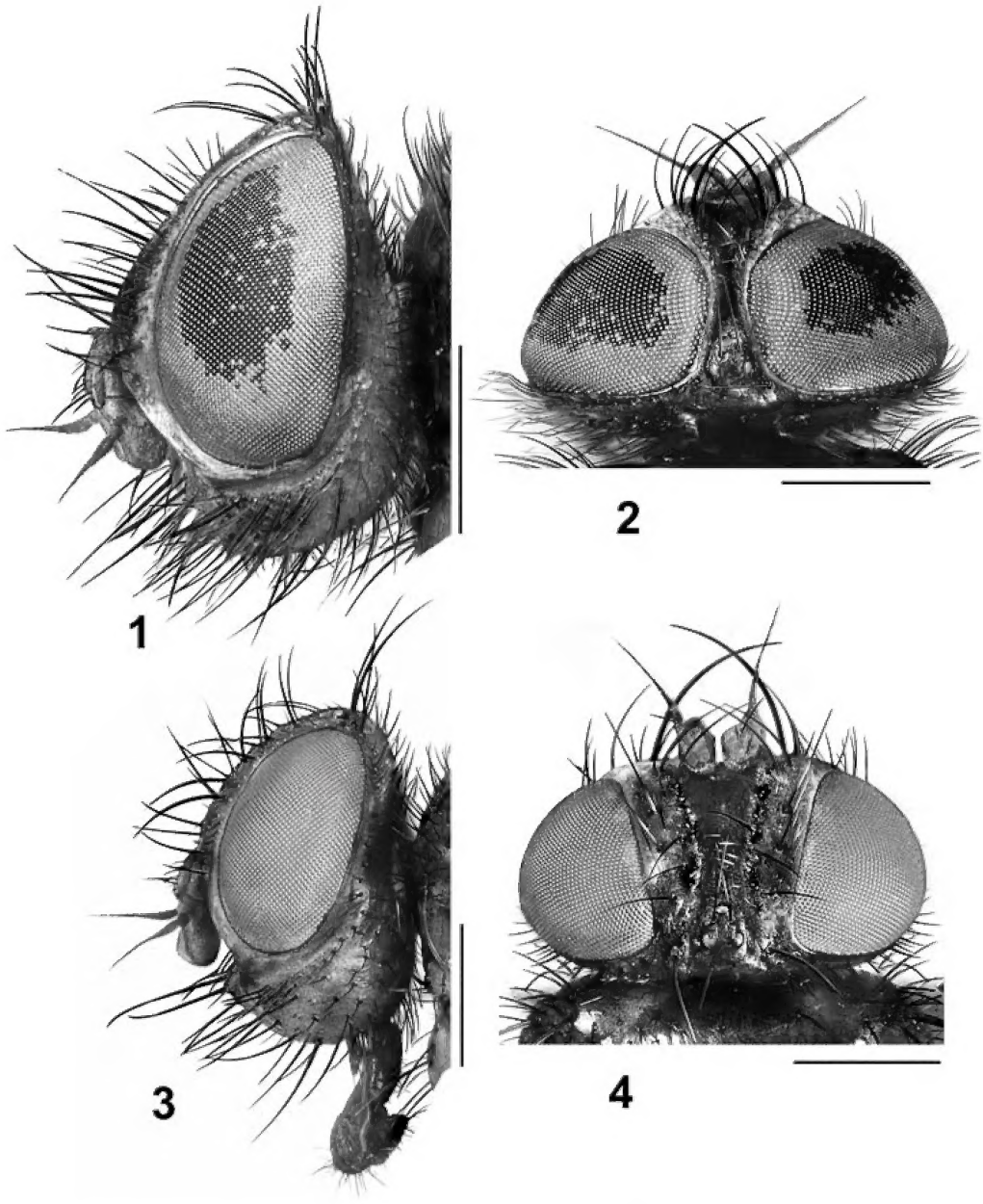
Holotype (♂): **Sweden**, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 08.VII.1984 / leg. C. BERGSTRÖM [NHRS].

Paratypes: **Sweden**: 2 ♂♂, 6 ♀♀, same data as holotype [1 ♂, 2 ♀♀ CB; 1 ♀ CNC; 1 ♂, 3 ♀♀ NHRS]. – 1 ♂, Öl. Hulterstad / N Gösslunda / 6.VII.1968 / L. HEDSTRÖM [ZIUU]. – 1 ♀, Öl. Hulterstad / Gösslunda / 7.VII.1968 / L. HEDSTRÖM [ZIUU]. – 1 ♀, Öl. Hulterstad / Gösslunda / 8.VII.1968 / L. HEDSTRÖM [ZIUU]. – 2 ♂♂, 1 ♀, Öl. Hulterstad / Gösslunda / 9.VII.1968 / L. HEDSTRÖM [ZIUU]. – 1 ♂, Öl. Hulterstad / Gösslunda / 12.VII.1968 / L. HEDSTRÖM [ZIUU]. – 1 ♀, Öl. Hulterstad / Gösslunda / 17.VII.1968 / L. HEDSTRÖM [ZIUU]. – 1 ♀, Öl. Resmo / SE Möckelmossen / 18.VII.1968 / L. HEDSTRÖM [ZIUU]. – 1 ♀, Up. Älvkarleby / Billudden / 9.VIII.1970 / L. HEDSTRÖM [ZIUU]. – 1 ♂, Sö. Mellösa, Stav, "Eketorp" / RN 65540 / 15477 / 29.VI.1977 / leg. C. BERGSTRÖM [CB]. – 1 ♂, Gä. Gysinge / 29.VII.1977, leg. T.-B. E. (= T.-B. ENGELMARK) [RE]. – 10 ♂♂, 1 ♀, Up. Uppsala, Nåsten, Hågadalen / RN 66355 / 16004 / 09.VII.1978 / leg. C. BERGSTRÖM [CB]. – 1 ♂, Sö. Mellösa, Stav, "Eketorp" / RN 65540 / 15477 / 06.VII.1979 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Sö. Varbro / lake Valdemaren / 20.VI.1981 [SMNS]. – 1 ♀, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 26.VI.1983 [CB]. – 7 ♂♂, 1 ♀♀, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 22.VI.1984 / leg. C. BERGSTRÖM [3 ♂♂ CB; 4 ♂♂, 1 ♀ NHRS]. – 1 ♀, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 23.VI.1984 / leg. C. BERG-

STRÖM [NHRS]. – 4 ♂♂, 2 ♀♀, Up. Uppsala / Läby, Solsäter / RN 66388 / 15965 / 14.VII.1984 / leg. C. BERGSTRÖM [1 ♂ SMNS; 3 ♂♂, 2 ♀♀ CB]. – 1 ♂, Up. Uppsala / Stenhagen-Herrhagen / 18.VII.1984 / leg. C. BERGSTRÖM [SMNS]. – 2 ♂♂, 3 ♀♀, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 22.VII.1984 / leg. C. BERGSTRÖM [1 ♀ CB; 2 ♂♂, 2 ♀♀ NHRS]. – 1 ♀, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 23.VII.1984 / leg. C. BERGSTRÖM [CB]. – 1 ♂, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 26.VI.1985 / leg. C. BERGSTRÖM [CB]. – 2 ♂♂, Sö. Katrineholm, Varbro / lake Valdemaren / RN 65460 / 15403 / 27.VI.1985 / leg. C. BERGSTRÖM [CNC; BYS]. – 1 ♂, Sö. Katrineholm, Varbro / Tjugesta skans / RN 6546 / 1540 / 29.VI.1985 / leg. C. BERGSTRÖM [CB]. – 2 ♂♂, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 03.VII.1985 / leg. C. BERGSTRÖM [CB; BYS]. – 3 ♂♂, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 24.VI.1986 / leg. C. BERGSTRÖM [MZLU]. – 3 ♀♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 10.VII.1986 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Uppsala / Nåsten, Hågadalen / RN 66355 / 16004 / 27.VI.1988 / leg. C. BERGSTRÖM [CB]. – 1 ♂, 1 ♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 29.VI.1988 / leg. C. BERGSTRÖM [CB]. – 1 ♂, 1 ♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 01.VII.1988 / leg. C. BERGSTRÖM [KR]. – 1 ♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 05.VII.1988 / leg. C. BERGSTRÖM [CB]. – 1 ♂, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 19.VI.1989 / leg. C. BERGSTRÖM [CB]. – 3 ♂♂, 2 ♀♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 30.VI.1989 / leg. C. BERGSTRÖM [MZLU]. – 6 ♂♂, 5 ♀♀, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 23.–26.VI.1990 / leg. C. BERGSTRÖM [3 ♂♂, 2 ♀♀ ZMUC; 3 ♂♂, 1 ♀ CB; 2 ♀♀ BYS]. – 1 ♀, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 26.–29.VI.1990 / leg. C. BERGSTRÖM [CB]. – 1 ♂, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 1.VII.1990 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 8.VII.1990 / leg. C. BERGSTRÖM [CB]. – 2 ♂♂, 1 ♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 9.VII.1990 / leg. C. BERGSTRÖM [CB]. – 2 ♀♀, Up. Uppsala / Nåsten, Forsbacka / RN 66362 / 15973 / 10.VII.1990 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 17.VII.1990 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 20.VII.1990 / leg. C. BERGSTRÖM [CB]. – 1 ♂, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 26.VI.1991 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Valö fg. Vigelsbo / RN 66883 / 16206 / 15.–16.VII.1991 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Uppsala / Nåsten, Forsbacka / 6.VII.1999 / leg. C. BERGSTRÖM [SMNS]. – 1 ♀, Up. Uppsala näs fg. Sätrasjön / 08.VI.2000 / leg. C. BERGSTRÖM [CB]. – 2 ♂♂, Up. Uppsala näs fg. Sätrasjön / 11.VI.2000 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Uppsala näs fg. Sätrasjön / 15.VI.2000 / RN 66348 / 15940 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Up. Uppsala näs fg. Sätrasjön / RN 66348 / 15940 / 16.VI.2000 / leg. C. BERGSTRÖM [CB]. – 2 ♂♂, 2 ♀♀, Up. Uppsala näs fg. Sätrasjön / RN 66348 / 15940 / 18.VI.2000 / leg. C. BERGSTRÖM [KR]. – 1 ♀, Up. Uppsala näs fg. Sätrasjön / RN 66348 / 15940 / 21.VI.2000 / leg. C. BERGSTRÖM [CB]. – 1 ♀, Vb. Skellefteå / Yttervik / 20.VII.2005 RE (= R. ENGELMARK) [RE]. – 1 ♀, Vb. Skellefteå / Yttervik, Cicuta / 22.VII.2005 RE (= R. ENGELMARK) [RE]. — **Finland**: 1 ♀, Ål. Sottunga / 03.VIII.1981 / leg. C. BERGSTRÖM [CB]. – 1 ♂, EF. Naantali // TIENSUU // 17.VI.1935 [MZH]. – 1 ♀, EF. Naantali // TIENSUU // 23.VI.1935 [MZH]. – 1 ♂, 1 ♀, EF. Naantali / 24.VI.1935 / L. TIENSUU [MZH]. – 1 ♀, EF. Nagu / Högsar VI.1962 / A. NORDMAN // *Loewia* / *phaeoptera* Mg. / det. D. M. WOOD 1969 [MZH]. – 1 ♀, EF. Nagu // R. FREY // 1542 [MZH]. – 1 ♀, NÖb / Pisavaara naturpark / 06.VII.1950 / HÅKAN LINDBERG [MZH]. – 1 ♂, Ål. Lemland // NORDMAN // 1702 [MZH]. – 1 ♂, Ål. Föglö // Bänö // 8.VII.1922 // R. FREY // *Loewia* / *phaeoptera* Meig. / TIENSUU det. [MZH]. – 1 ♀, Ål. Föglö // Juddö // 9. VII. 1922 // R. FREY [MZH]. – 1 ♀, Ål. / VII.1970 / U. LOHM [ZIUU]. – 1 ♀, EF. Ruissalo / 11.V.1930 / E. KIVIRIKKO // *Loewia phaeoptera* Meig. // coll. / THUNEBERG [MZH]. – 1 ♀, STa. Ylöjärvi // 27.VI.1922 / R. FREY [MZH]. – 1 ♂, STa. Ypäjä / 27.VI.1964 / A. MAANIITTY [ZIUU]. – 1 ♀, STa. Urjala / 4.VII.1964 / T. BRANDER [ZIUU]. – 1 ♀, STa. Urjala / 11.VII.1964 / T. BRANDER [ZIUU]. — **Norway**: 1 ♂, 652 // Gl. 1817 / Z. M. Oslo // MRY, Gjemnes / Osmarka, Raumyr / 14.VII.1953 / ROLF KROGERUS // 10104 // *Loewia* ♂ /?*foeda* Mg. / K. ROGNES det. 83 // *Loewia* ♂ / ?*phaeoptera* Meig. / B. HERTING det. [ZMUN]. — **Poland**: 1 ♂, CD37 / Toruń / blonia [= meadows along river banks] / 2.VI.2005 / leg. K. SZPILA [SMNS].

Etymology

The new *Loewia* species is named after the erect abdominal ground vestiture in males (from Latin erectus -a -um, meaning erect, raised or upright).



Figs. 1–4. *Loewia erecta* n. sp., heads of paratypes. – **1**. ♂, lateral view. **2**. ♂, dorsal view. **3**. ♀, lateral view. **4**. ♀, dorsal view. – Scales: 0.5 mm.

Description

Male (characters within square brackets refer to holotype):

Body length: 3.5–4.7 [4.3] mm.

Colour and pruinosity: Head black with a thin grey or greyish white pruinescence on face, parafacial and parafrontal along eye margin; pruinescence hardly visible on occiput and genal dilation. Frontal vitta and genal groove reddish brown in frontal view. Antenna predominately black, scape and pedicel sometimes brownish black. Palpus light brown at base, darker apically. Thorax dorsally with a very light

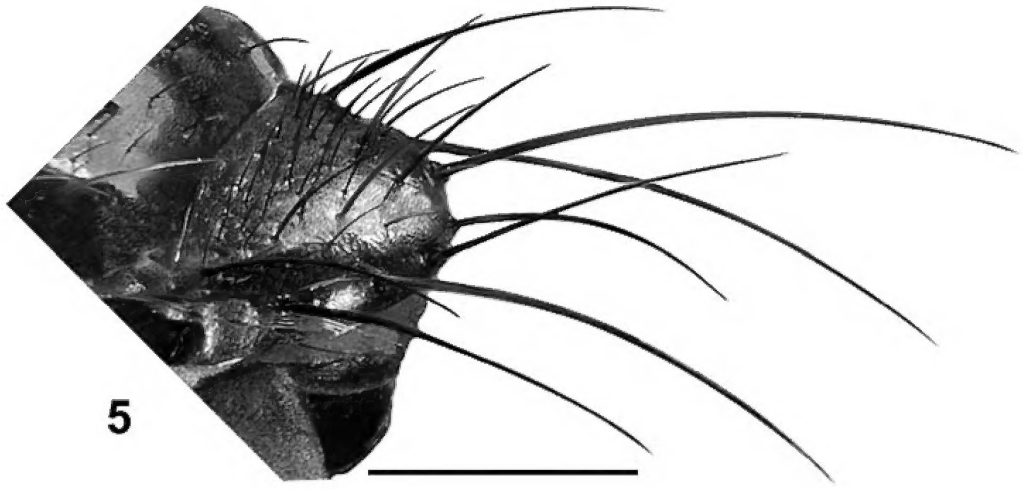


Fig. 5. *Loewia erecta* n. sp., ♂ paratype, scutellum in oblique lateral view. – Scale: 0.5 mm.

pruinescence; scutum with very indistinct longitudinal black stripes in front of suture. Wing with a brownish tinge, slightly more hyaline along hind margin. Tegula black, basicosta brownish black. Upper and lower calypter yellowish white. Halter brown with darker head. Legs brown or brownish black. Abdomen black, dorsally and ventrally with a light grey pruinescence which is only visible when viewed from behind.

Head (Figs. 1–2): Eye sparsely haired; hairs pale, as long as 2–2.5 eye facets. Height of face 0.6–0.7 [0.6] times the length of frons. Frons at its narrowest point 0.14–0.22 [0.15] times as wide as an eye in dorsal view, approximately as wide as first flagellomere. Interfrontal area at its narrowest point approximately twice as wide as a parafrontal at that level. Inner vertical seta 0.4–0.5 [0.4] times as long as vertical diameter of an eye; outer vertical seta 0.6–0.7 [0.7] times as long as inner vertical seta and distinctly stronger than postocular setae. Ocellar setae strong, proclinate, inserted between anterior ocellus and posterior ocelli; an additional pair of weak ocellar setae inserted at the level of, or slightly behind posterior ocelli; 1 pair of strong postocellar setae present. Parafrontal anteriorly with a row of 5–6 strong frontal setae descending to about the level of the middle of pedicel, strongest frontal seta at or slightly behind base of scape; upper frontal setulae gradually shorter and more hair-like. Parafrontal area with a row of short black setulae close to eye margin (lateral to the frontal setae). Parafacial in profile strongly narrowing below, usually bare (no parafrontal setulae descending below the level of the lowest frontal seta), but rarely with a strong setula at the lower eye margin. Occiput with 2–3 somewhat irregular rows of small black setulae behind the postocular row of setae; back of head with pale hairs restricted to lower and central part of occiput and to postgena. Gena in profile 0.29–0.34 [0.32] times as wide as vertical eye diameter. Vibrissae as long as or slightly longer than height of face, inserted at the level of the lower facial margin, the latter not visible in profile. Facial ridge above vibrissae with 4–5 strong setae and some additional setulose hairs ascending to about the lower third. First flagellomere 1.2–1.5 [1.46] times as long as pedicel. Arista thickened in about the basal quarter; aristomere 2 shorter than wide. Palpus about as long as first flagellomere, with long black hairs apically. Sclerotized part of prementum approximately twice as long as wide.

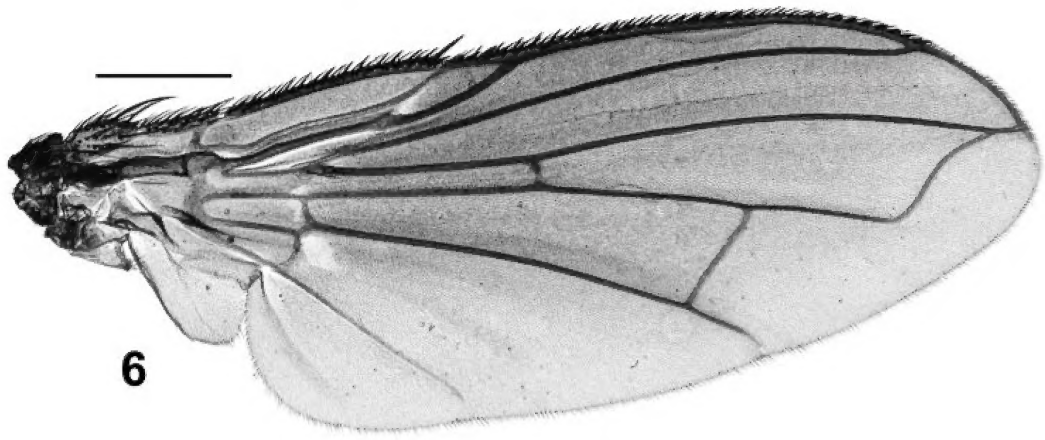


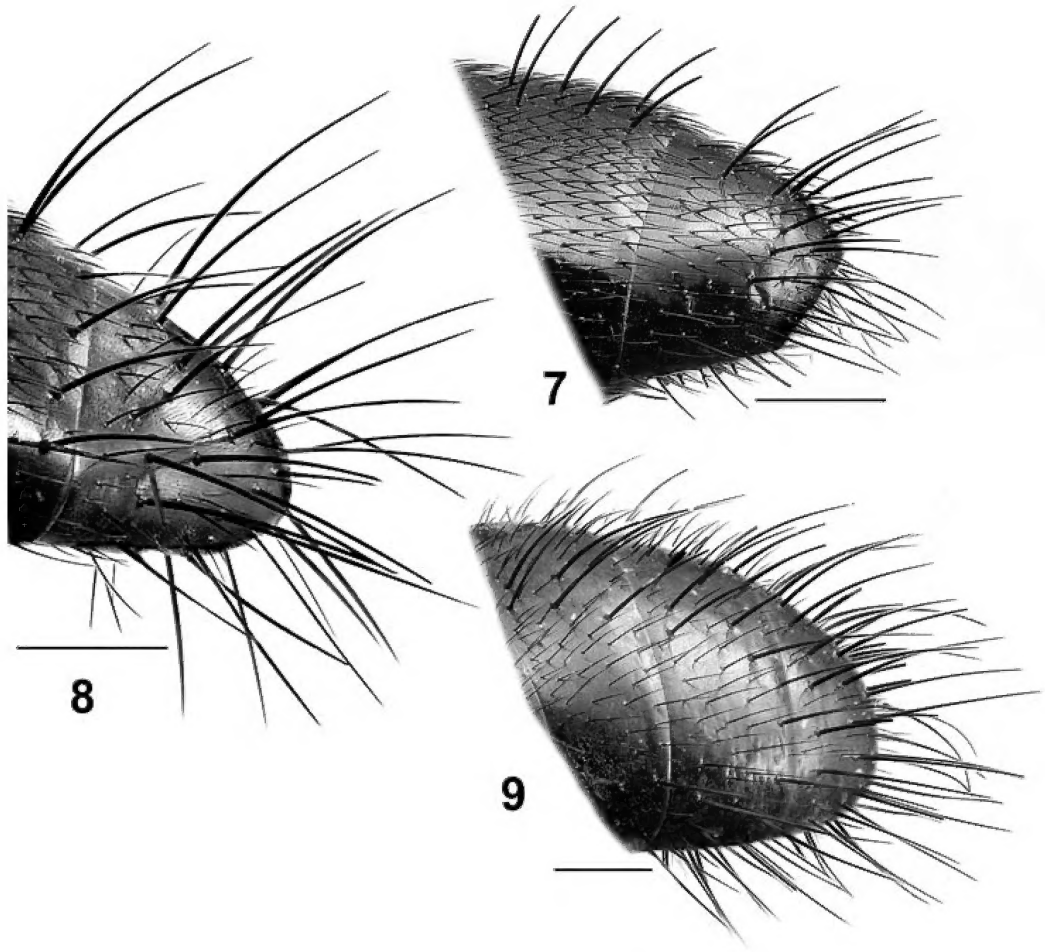
Fig. 6. *Loewia erecta* n. sp., ♂ paratype, right wing. – Scale: 0.5 mm.

Thorax: Ground vestiture sparse, black, semi-erect to erect. Prosternum and katepimeron bare. Proepisternum bare, except for 1–2 seta(e) and some hairs at the lower margin. Postpronotum usually with 3 basal setae arranged in an almost straight line, the inner seta sometimes very short and hair-like; 1 posthumeral seta; 2 notopleural setae. Scutum with 2+3 pairs of acrostichal setae, 2+3 pairs of dorsocentral setae and 0+3 pairs of intra-alar setae. First postsutural supra-alar seta strong and distinctly longer than notopleural setae. Presutural seta strong. Katepisternum with 2(–3) [3] setae and some short hairs. Anepimeral seta differentiated, about half as long as the strongest katepisternal seta. Posterior spiracle with the posterior fringe distinctly larger than the anterior one. Scutellum (Fig. 5) with 1 or rarely 2 pairs of lateral setae, strongest lateral seta subequal to subapical seta; basal seta distinctly shorter and weaker, sometimes only half as long as lateral seta; apical setae almost horizontal, crossed; 1–3 pairs of erect discal setulae, the strongest almost as long as scutellum. Distance between subapical setae 1.1–1.5 [1.2] times as long as distance between subapical and basal seta on one side.

Wing (Fig. 6): Second costal section bare ventrally. Costal spine differentiated, slightly longer than crossvein r-m. Base of vein R_{4+5} with 2–4 setulae dorsally and 1–2 setulae ventrally. Cell r_{4+5} petiolate, petiole 0.05–0.25 [0.16] times as long as apical cross-vein; vein M joining vein R_{4+5} in an acute angle. Bend of vein M without an appendage. Section of vein M between crossvein dm-cu and bend 1.5–2.0 [1.9] times the distance between bend of vein M and hind margin of the wing. Last section of vein CuA_1 distinctly shorter than crossvein dm-cu.

Legs: Fore legs with claw and pulvillus 1.1–1.2 times as long as tarsal segment 5. Fore tibia with 2 posterior setae; anterodorsal preapical seta as strong as or slightly stronger than dorsal preapical seta. Mid tibia with 3 anterodorsal setae; 2–4 posterodorsal setae, 1 posterodorsal seta occasionally inserted in an almost posterior position; usually a single posterior seta; 2 ventral setae, lower seta strong, upper seta variable but always shorter than lower seta. Hind tibia with an irregular row of 5–6 anterodorsal setae, and some much weaker setulae; 4–5 posterodorsal setae, 2–3 anteroventral setae and 2 dorsal preapical setae; preapical posteroventral seta as strong as preapical anteroventral seta. Hind coxa bare on posterior margin.

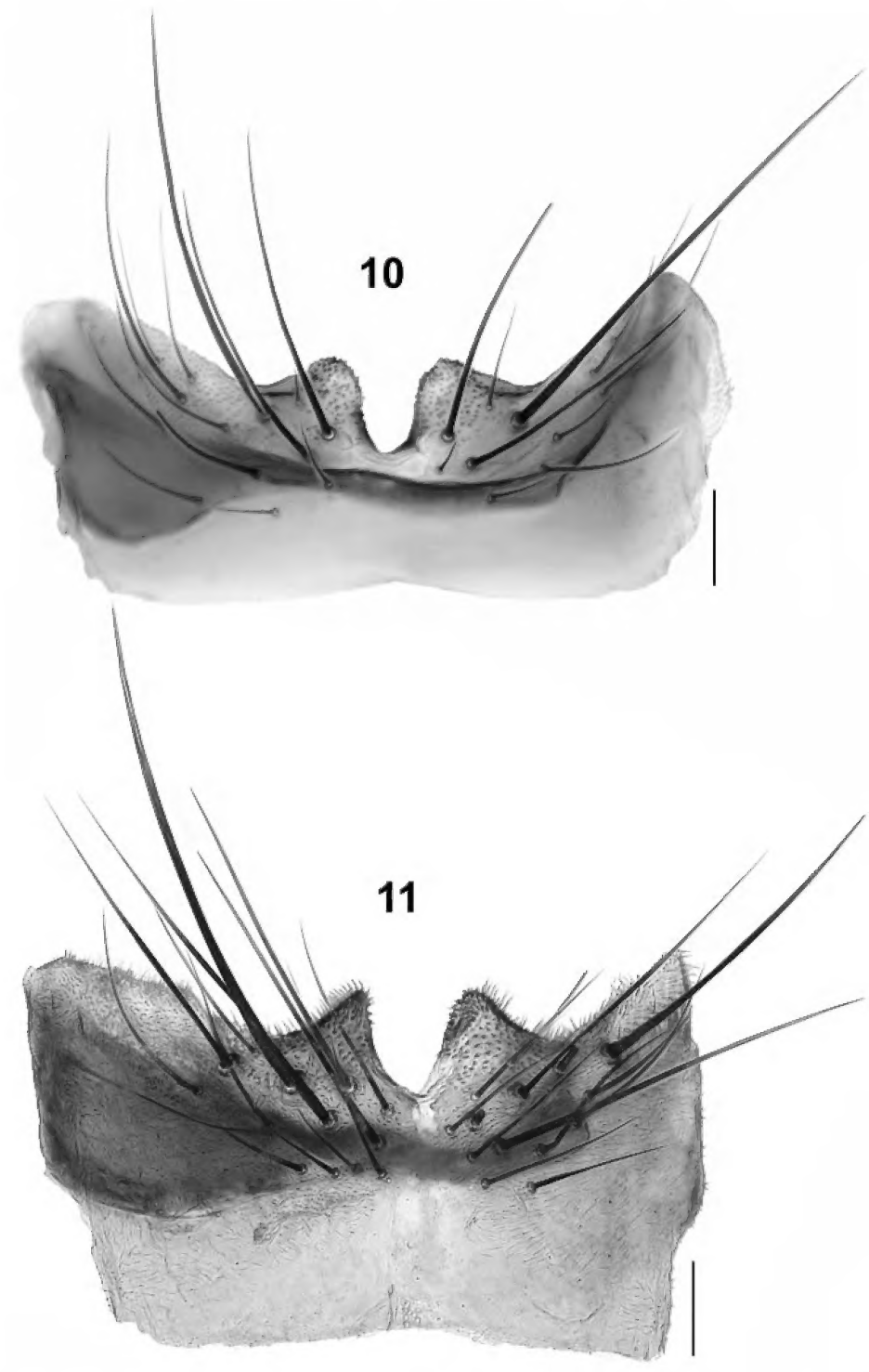
Abdomen (Fig. 9): Ground vestiture usually erect on tergite 3 (sometimes only semi-erect in part), erect on tergites 4 and 5. Middorsal depression on syntergite 1+2



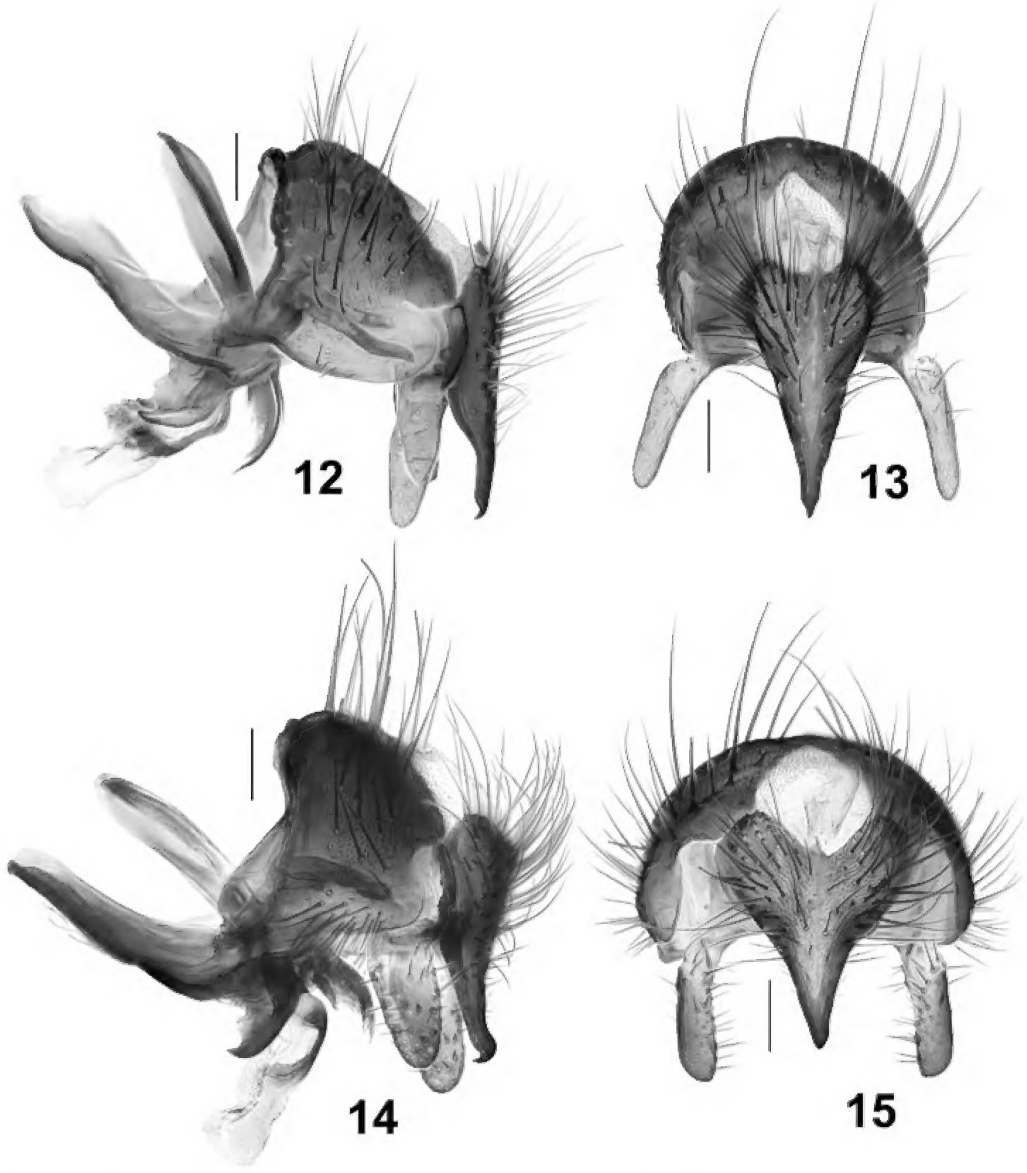
Figs. 7–9. *Loewia* sp., abdominal tergites 4–5 (7, 8) or 3–5 (9), lateral view. – **7**. *L. phaeoptera*, ♀. **8**. *L. erecta* n. sp., ♀ paratype. **9**. *L. erecta* n. sp., ♂ paratype. – Scales: 0.5 mm.

extending back to hind margin. Abdominal chaetotaxy variable: Tergite 2 usually without median marginal setae but with 1–2 pairs of lateral marginal setae and also some lateral discal seta and setulae. Tergites 3 and 4 usually with 2 pairs of median discal setae inserted after each other, posterior pair usually well separated from the hind margin; sometimes 6 median discal setae present. Tergite 3 with 1–3 pairs of lateral discal setae; usually 2 well separated median marginal setae (but these sometimes strongly reduced or even missing); 2–3 pairs of lateral marginal setae. Tergite 4 with 2–4 pairs of lateral discal setae and a row of 8–10 marginal setae with the two median setae usually widely separated. Tergite 5 covered with strong discal setae arranged in 3 irregular rows and with a row of marginal setae.

Terminalia (5 dissections) (Figs. 10, 12–13, 16–17): Sternite 5 about 2 times as wide as long; basal plate short; anterior margin distinctly concave; posterior margin with a narrow U-shaped median cleft reaching approximately $^2/_5$ of that segment; posterior half of sternite 5 with some strong setulae, the strongest about as long as the width of that segment; median lobe densely spinulose; transversal membranous stripe almost square, as wide as 0.2 of sternite 5 (not visible in Fig. 10). Tergite 6 wide and short, well sclerotized with 4–11 setulose hairs at posterior margin, its lateral

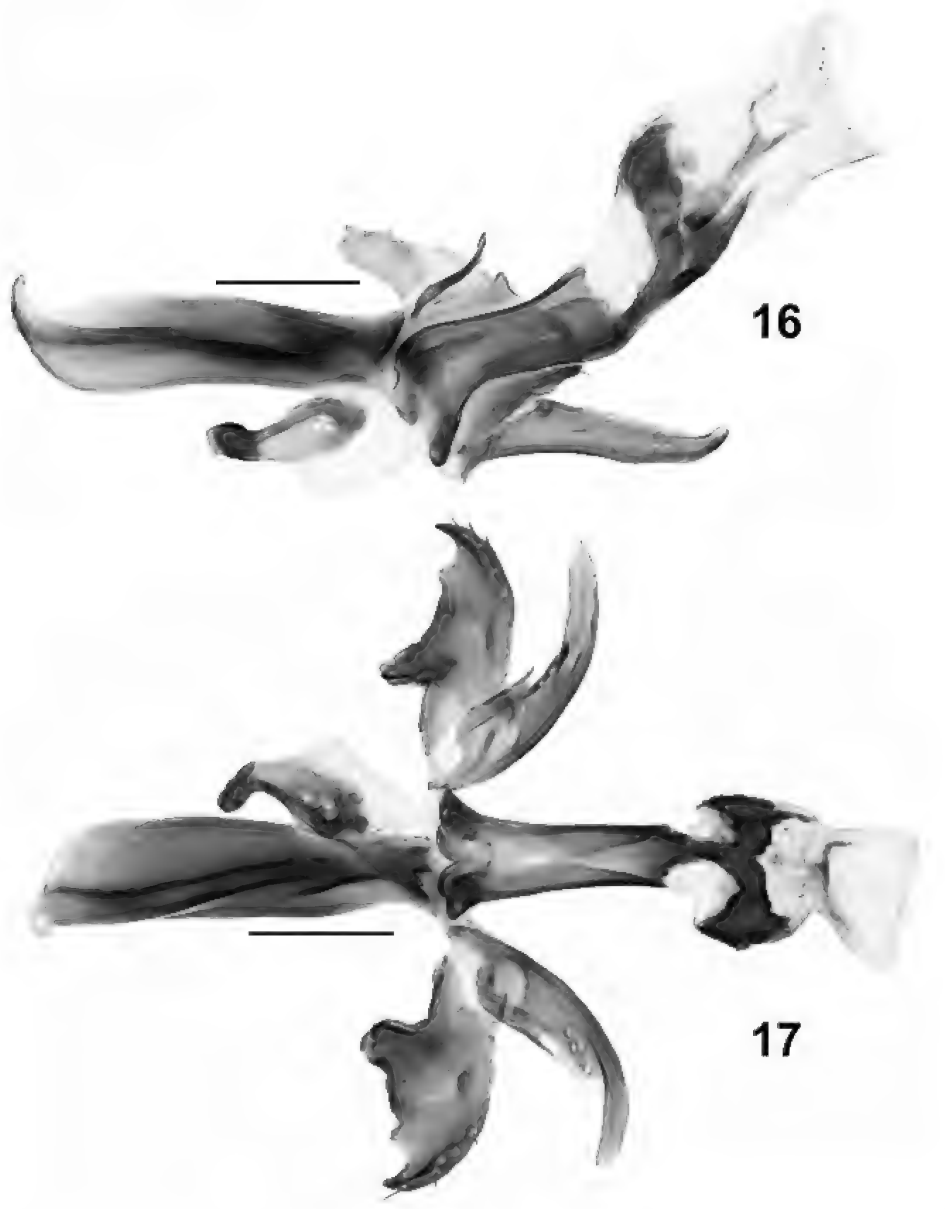


Figs. 10–11. *Loewia* sp., abdominal sternite 5 (and dark contour of sternite 6), ventral view. – **10**. *L. erecta* n. sp., ♂ paratype. **11**. *L. phaeoptera*, ♂. – Scales: 0.1 mm.



Figs. 12–15. *Loewia* sp., hypopygium, lateral (12, 14) and caudal (13, 15) views. – **12–13**. *L. erecta* n. sp., ♂ paratype. – **14–15**. *L. phaeoptera*, ♂. – Scales: 0.1 mm.

margins fused with segment 7. Sternite 6 strongly asymmetrical, on left side articulated with segment 7+8. Syncercus in dorsal view rather narrow basally and evenly tapering towards apex, its basal half with a membranous median suture; in lateral view almost straight from base to apex dorsally, tapered in about the apical quarter ventrally; apex with a minute tooth-like projection. Surstylus free from epandrium, its apical part in lateral view relatively broad and covered with black setulae. Pregonite lobe-like with a distinct tooth-like projection apically and 5–6 sensorial hairs along its posterior margin. Postgonite narrow, somewhat hook-like, broadly membranous apically, with 4–5 sensorial hairs. Basiphallus with a small basal projection but without epiphallus. Distiphallus without a median projection of the dorsal scle-



Figs. 16–17. *Loewia erecta* n. sp., ♂ paratype, aedeagus, pregonites, postgonites, aedeagal apodeme and ejaculatory apodeme in oblique lateral (16) and dorsal (17) views. – Scales: 0.1 mm.

rite; lateroventral region with a sclerotized, partly spinulose plate; the only sclerotized structure in the apical region is a weakly sclerotized streak, X-shaped in ventral view and at its base connected to the ventral sclerites.

Female, differing from males as follows:

Greyish white pruinescence on head and thorax very light and abdomen practically without pruinescence. Parafrontal area shining black. Palpus brownish yellow.

Head (Figs. 3–4): Eyes very sparsely haired, hairs about as long as 1–1.5 eye facets. Frons broad, at its narrowest point 0.85–1.02 times as wide as an eye. 2–3 (rarely 4)

outer proclinate setae, 1 (rarely 2) inner reclinate seta(e) and a strong lateroclinate seta (prevertical seta). Interfrontal area at its narrowest point 0.67–0.82 times as wide as a parafrontal. Inner vertical seta about 0.6–0.7 times as long as the vertical diameter of an eye. Normally without an additional pair of weak ocellar setae at the level of posterior ocelli. Gena in profile 0.32–0.42 times as wide as vertical eye diameter.

Scutellum with 1–2 pairs of recumbent or semi-erect discal setulae; the strongest pair is at least half as long as the scutellum.

Legs: Fore claw short, about 0.6–0.7 times as long as last tarsal segment. Fore tibia normally with 2 posterior setae (rarely with 0, 1 or 3).

Abdominal ground vestiture recumbent, except a few erect setulae mediodorsally on tergite 5 (Fig. 8). Less setae on the abdomen: Syntergite 1+2 usually with only 1 pair of lateral marginal setae. Tergites 3 and 4 with 2 pairs each of median discal setae. Tergite 3 usually without median marginal setae. Tergite 4 (Fig. 8) normally with an almost continuous row of marginal setae although some of the setae are usually more or less recumbent; the median pair is more widely separated than the median discal pairs. Tergite 5 with discal setae arranged in three more or less irregular rows, the strongest setae distinctly longer than length of tergite 5; ground vestiture sparse, erect except for a few semi-erect setulae along anterior margin (Fig. 8).

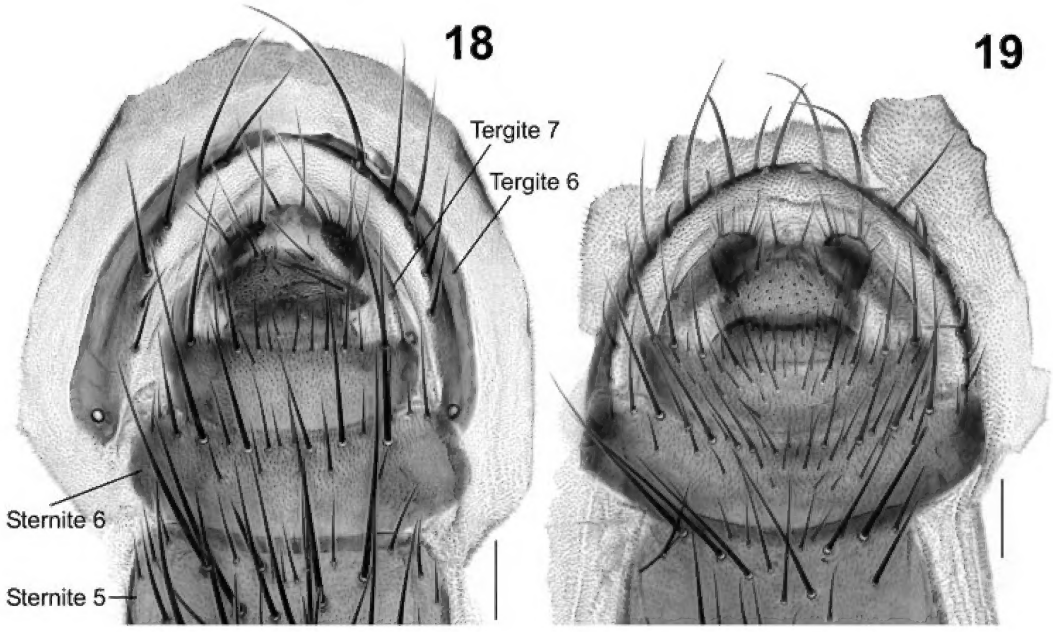
Terminalia (3 dissections) (Fig. 18). Uterus present. Ovipositor short, tergite 6 medially narrowly membranous and somewhat divided into hemitergites, each with 6–7 setulae along the posterior margin, 6th spiracle on lateral margin of tergite 6; sternite 6 slightly wider than sternite 5, approximately 3 times as wide as long with 15–25 setulae in the posterior third; tergite 7 weaker developed than tergite 6, divided into two hemitergites, right 7th spiracle on lateral margin of tergite 7, left 7th spiracle in membrane between tergite 7 and tergite 6; sternite 7 about 0.7–0.8 times as wide as sternite 6 with 15–25 setulae, most of them restricted to the posterior margin; sternite 8 well developed, about 0.5–0.6 times as wide as sternite 6; rudiments of tergite 8 visible between sternite 8 and lower posterior margin of tergite 7; epiproct reduced but a pair of setulae remains; hypoproct densely covered with setulae, lingulae well developed; cercus fairly sclerotized with 7–8 setulae.

Distribution

In Sweden recorded from eight provinces (no records from Skåne, Blekinge and Halland). Most specimens were collected by the author in Uppland (Uppsala) and Södermanland (Mellösa and Varbro), but there are also scattered records from Småland northwards to Norrbotten (Pajala). In Finland known from six provinces; five of them in the south i. e. Ahvenanmaa, Varsinais-Suomi, Uusimaa, Satakunta and Etelä-Häme and one in the north Perä-Pohjanmaa. Historically the old "*phaeoptera*" was also recorded from five additional districts not confirmed in this work (Etelä-Pohjanmaa Pohjois-Häme, Pohjois-Savo, Kainuu and Kittilän Lappi). A single Norwegian record from the province Möre and Romsdal and a single record from Poland (Toruń). *L. erecta* n. sp. is so far only known from Fennoscandia and Poland.

Biology

The author has frequently collected the new species from foliage of *Quercus robur*, *Populus tremula*, *Prunus spinosa*, *Alnus glutinosa* and *Salix* spp., more rarely from pine needles and from flowers of *Potentilla fruticosa*, *Anthriscus silvestris*, *Ci-*



Figs. 18–19. *Loewia* sp., ♀ sternite 5 and ovipositor, ventral view. – **18.** *L. erecta* n. sp., paratype. **19.** *L. phaeoptera*. – Scales: 0.1 mm.

cuta virosa and *Sorbaria sorbifolia*. Mating was observed in early July (9.VII.1979) on the foliage of *Quercus robur*.

Flight period: early June to early August, indicating one generation per year.

Host unknown.

4 Differences to other species of *Loewia*

L. erecta n. sp. is very similar to *L. phaeoptera*. It keys out as *L. phaeoptera* or occasionally as *L. adjuncta* in the hitherto available keys. A direct comparison with *L. phaeoptera* reveals that males of *L. erecta* have the hairs on the eye slightly but consistently longer and usually have a narrower frons; the females show short-haired eyes and possess one or two reclinate inner orbital seta(e). Some of the characters of the males were already mentioned by HERTING in a letter to the Norwegian dipterologist KNUT ROGNES in 1983: "The most difficult case is the *Loewia* male. It comes closest to *L. phaeoptera* Meigen, but the eyes are more distinctly pilose, the frons is narrower (further reduced by shrivelling in your specimen), and there are erect hairs on the scutellum. I have seen such specimens also from Sweden (Öland) and Finland; it may be a Scandinavian race of *phaeoptera*". To assess the importance of these deviations, the author has compared specimens from Germany with specimens from Fennoscandia.

A very characteristic difference discovered in this study is the erect abdominal ground vestiture of tergites 3 and 4 in male *L. erecta* (Fig. 9); this ground vestiture is recumbent in male *L. phaeoptera*. Tergite 5 of female *L. erecta* possesses stronger discal setae and mediodorsally a sparse, erect ground vestiture (Fig. 8); in female *L.*

phaeoptera the discal setae are distinctly shorter than tergite 5, and the ground vestiture is predominately recumbent (Fig. 7).

Male terminalia of *L. erecta* (Figs. 10, 12–13) and *L. phaeoptera* (Figs. 11, 14–15) are clearly different: the basal plate of sternite 5 is short (longer in *L. phaeoptera*); the syncercus in lateral view straight (curved in *L. phaeoptera*), in dorsal view basally narrow and gradually tapering towards apex (wider basally and heart-like in *L. phaeoptera*).

Female terminalia of *L. erecta* (Fig. 18) and *L. phaeoptera* (Fig. 19) are different: the hemitergites 6 of *L. erecta* each have 6–7 setulae along the posterior margin (11–12 in *L. phaeoptera*); sternites 6 and 7 each with 15–25 setulae posteriorly (35–40 in *L. phaeoptera*); sternites 6 and 7 approximately 3 times as wide as long (approximately 4 times in *L. phaeoptera*).

The new species keys out from other central and north European species of *Loewia* when couplets 4 and 5 of the key of TSCHORSNIG & HERTING (1994: 69–70) are modified as follows:

4 Eye practically bare; only scattered hairs visible (if viewed under strong magnification against a dark background), hairs in males 1–1.5 times as long as one eye facet, in females shorter and more sparsely set; lateral scutellar setae varying in length between basal and subapical setae. – ♂♂: frons at its narrowest point 0.21–0.30 times as wide as an eye; abdomen with very light pruinescence which is only visible in posterior view; ground vestiture of tergites 3 and 4 recumbent. – ♀♀: parafrontal area entirely shiny black in dorsal view, nearly always without reclinate inner orbital seta; scutellum dorsally at most with 1–2 pairs of very short, recumbent setulae, which are – if present – less than half as long as the scutellum. ..... ***L. phaeoptera*** Meigen

– Eye hairy; hairs in males about as long as 2–3 eye facets, in females about as long as 1–3 eye facets. – ♂♂: frons at its narrowest point 0.09–0.24 times as wide as an eye. – ♀♀: parafrontal area in its lower part (at least up to the lowermost proclinate orbital seta) with light pruinescence in dorsal view, reclinate inner orbital seta(e) present; scutellum dorsally with a preapical pair of distinctly erect setulae and 1–2 pairs of semi-erect setae except for *L. erecta* that has 1–3 pairs of recumbent or semi-erect setulae, but the strongest pair at least half as long as the length of scutellum. **5**

5 Lateral scutellar setae strong, often twice as long as the basal setae (Fig. 5). Hairs on the eye in males about as long as 2–2.5 eye facets, in females about as long as 1–1.5 eye facets and more sparsely set. – ♂♂: abdomen with very light pruinescence which is only visible in posterior view; ground vestiture on tergites 3 and 4 erect (on tergite 3 sometimes semi-erect in part) (Fig. 9). – ♀♀: scutellum with 1–3 pairs of semi-erect to recumbent setulae dorsally. – Body length 3.5–4.7 mm. ..... ***L. erecta*** n. sp.

– Lateral scutellar setae weaker, at most as long as the basal setae. Hairs on the eye about as long as 3 eye facets. – ♂♂: abdomen with denser pruinescence visible in dorsal view; ground vestiture on tergites 3 and 4 recumbent. – ♀♀: scutellum with some erect setulae dorsally. **6**

6 Petiole of wing cell r_{4+5} very short, only about as long as the diameter of the veins. Lateral scutellar setae about as long as the basal setae. – ♂♂: longest katepisternal hairs as long as $^1/_2$–$^2/_3$ of the katepisternal setae. – Body length 5.5–6.5 mm. ..... ***L. adjuncta*** Herting

– Petiole of wing cell r_{4+5} longer, usually about as long as r-m. Lateral scutellar setae variable, as a rule shorter than the basal setae, sometimes missing. – ♂♂: katepisternal hairs weak, as long as $^1/_5$–$^1/_2$ of the katepisternal setae. – Body length 4–5.5 mm. ... ***L. nudigena*** Mesnil

5 Notes on the holotype of *Tachina phaeoptera* Meigen

A number of digital photographs of the holotype ♀ of *Tachina phaeoptera* (see MEIGEN 1824: 288) have been examined and compared with females of *L. erecta* and *L. phaeoptera*. The type, deposited in Paris (MNHN), is unfortunately in bad con-

dition: most of the frontal and parafrontal setae are missing; the thorax including scutellum and abdomen has lost many setae and tergites 3–5 are also partly devoid of ground vestiture; the right wing is broken in the middle and the left wing has a prominent tear. It is therefore somewhat difficult to establish its identity, but the following statements can be made:

– The scutellum of the females of *L. erecta* possesses 1–3 pairs of recumbent setulae, the strongest pair of setulae at least half as long as the scutellum. These setae are distinctly shorter in the examined females of *L. phaeoptera*. It is not possible to trace any differentiated scutellar setulae on the photos of the *Tachina phaeoptera* type.

– Tergite 4 of female *L. erecta* (Fig. 8) has normally an almost continuous row of marginal setae although some of the setae are usually more or less recumbent; the median pair is wider separated than the median discal pairs. Females of *L. phaeoptera* (Fig. 7) have a pair of strong median marginal setae, near to each other but well separated from the 2–3 pairs of lateral marginal setae. These setae are broken off in the type, but the position of the pores on the photo is as in the examined material of *L. phaeoptera*.

– The parafrontal area of female *L. erecta* (Fig. 4) has well developed reclinate inner orbital seta(e); the interfrontal area is – at its narrowest point – 0.7–0.8 times as wide as a parafrontal at that level. Reclinate inner orbital setae are practically always missing in females of *L. phaeoptera*, the interfrontal area is narrower, only 0.3–0.5 times as wide as a parafrontal at that level. There are no reclinate inner orbital setae and no detectable pores in the photos of the holotype, the interfrontal area is – at midlength – approximately 0.5 times as broad as the parafrontal at that level.

Consideration should also be given to the views of HERTING (1972), who has examined the holotype of *Tachina phaeoptera*. As cited in chapter 4, HERTING noted few years later some differences between specimens of *L. phaeoptera* (s. str.) and what were presumed to be specimens of the same species taken from Nordic countries.

These facts and the geographical distribution (the type locality of *Tachina phaeoptera* is unknown, but unlikely to be from Fennoscandia), support the view that the identity of the holotype is in accordance with the prevailing concept of *L. phaeoptera*.

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